

IN THE CLAIMS

1. (Currently Amended) A color ink-jet printer comprising:
 - a first ink ejecting portion operable to eject droplets of a black ink;
 - a second ink ejecting portion operable to eject droplets of an ink of a color other than black;
 - a first control portion operable to control said first ink ejecting portion such that a total volume of at least one droplet of said black ink ejected by said first ink ejecting portion to form each dot of the black ink on a recording medium is equal to a selected one of a plurality of different total volume values; and
 - a second control portion operable to control said second ink ejecting portion such that a total volume of at least one droplet of the ink of said color other than black, which is ejected by said second ink ejecting portion to form each ink dot of said color other than black on the recording medium, is equal to another of said plurality of different total volume values which is smaller than said selected one total volume value,

and wherein said first and second control portions control said first and second ink ejecting portions such that a relationship between said selected one total volume value of the at least one droplet of said black ink and said another total volume value of the at least one droplet of the ink of said color other than black changes when a presently selected print mode of the color ink-jet printer is changed from one mode to another,

wherein said first and second control portions are operable to select said one and another of said plurality of different total volume values, on the basis of said presently selected print mode that is selected from a plurality of different print modes which correspond to respective different values of resolution of said image.

2. (Original) The color ink-jet printer according to claim 1, wherein said first and second control portions are operable to control said first and second ink ejecting portions such that the total volume of said at least one droplet forming each dot of the black ink, and the total volume of said at least one droplet forming each ink dot of said color other than black are respectively kept at said one and another of said plurality of different total volume values, throughout entire operations of said first and second ink ejecting portions to print an image

on the recording medium, irrespective of gray-scale values at respective picture elements of said image.

3. (Cancelled)

4. (Previously Presented) The color ink-jet printer according to claim 1, wherein said first and second control portions are operable to select said one and another of said plurality of different total volume values, on the basis of respective gray-scale values at respective picture elements of an image to be printed on the recording medium at which respective ink dots are to be formed by said first and second ink ejecting portions according to print data.

5. (Previously Presented) The color ink-jet printer according to claim 1, wherein said first and second control portions are operable to select the total volume of said at least one droplet forming each dot of the black ink, and the total volume of said at least one droplet forming each ink dot of said color other than black, differently depending upon local areas of an image to be printed on the recording medium, as long as the total volume value of said at least one droplet forming each black ink dot is made larger than the total volume value of said at least one droplet forming each ink dot of said color other than black, in each local area of the image in which the black ink dots are adjacent to the ink dots of said color other than black.

6. (Original) The color ink-jet printer according to claim 1, further comprising a pulse-waveform-data memory for storing pulse-waveform data indicative of a plurality of different waveforms of drive pulse signals to be applied to said first and second ink ejecting portions to eject the droplets of the black ink and the ink of said color other than black, said plurality of different waveforms corresponding to said plurality of different total volume values, respectively, and wherein said first and second control portions are operable to select respectively one and another of said plurality of different waveforms which respectively correspond to said one and another of said plurality of different total volume values.

7. (Original) The color ink-jet printer according to claim 1, further comprising first and second pulse generators operable to generate drive pulse signals to be applied to said first and second ink ejecting portions such that the total volume of said at least one droplet forming each dot of the black ink and the total volume of said at least one droplet forming each ink dot of said color other than black are variable as the number of said at least one droplet to be ejected from each of said first and second ink ejecting portions is changed while the volume of each of said at least one droplet is kept constant.

8. (Original) The color ink-jet printer according to claim 1, further comprising first and second pulse generators operable to generate drive pulse signals to be applied to said first and second ink ejecting portions such that the total volume of said at least one droplet forming each dot of the black ink and the total volume of said at least one droplet forming each ink dot of said color other than black are changed by changing the volume of at least one of said at least one ink droplet to be ejected from each of said first and second ink ejecting portions.

9. (Original) The color ink-jet printer according to claim 1, wherein said second control portion is operable to control said second ink ejecting portion such that the total volume of said at least one droplet ejected by said second ink ejecting portion to form each ink dot of said color other than black is next smaller than said selected one total volume value.

10. (Original) The color ink-jet printer according to claim 1, further comprising a third ink ejecting portion operable to eject droplets of an ink of another color other than black, and a third control portion operable to control said third ink ejecting portion such that a total volume of at least one droplet of the ink of said another color other than black, which is ejected by said third ink ejecting portion to form each ink dot of said another color other than black on the recording medium, is equal to said another of said plurality of different total volume values.

11. (Currently Amended) A color ink-jet printer comprising:

a first ink ejecting portion operable to eject droplets of a first ink of a first color;

a second ink ejecting portion operable to eject droplets of a second ink of a second color other than said first color;

a first control portion operable to control said first ink ejecting portion such that a total volume of at least one droplet of said first ink ejected by said first ink ejecting portion to form each dot of said first ink on a recording medium is equal to a first value, when an image is formed on the recording medium with a predetermined resolution, with a predetermined gray-scale value at a picture element corresponding to said each dot of said first ink; and

a second control portion operable to control said second ink ejecting portion such that a total volume of at least one droplet of said second ink ejected by said second ink ejecting portion to form each dot of said second ink on the recording medium, is equal to a second value smaller than said first value, when said image is formed on the recording medium with said predetermined resolution, with said predetermined gray-scale value at a picture element corresponding to said each dot of said second ink,

and wherein said first and second control portions control said first and second ink ejecting portions such that a relationship between said first value of the total volume of the at least one droplet of said first ink and said second value of the total volume of the at least one droplet of said second ink changes when a presently selected print mode of the color ink-jet printer is changed from one mode to another

wherein said first and second control portions are operable to select said one and another of said plurality of different total volume values, on the basis of said presently selected print mode that is selected from a plurality of different print modes which correspond to respective different values of resolution of said image.

12. (Original) The color ink-jet printer according to claim 11, further comprising a third ink ejecting portion operable to eject droplets of a third ink of a third color other than said first and second colors, and a third control portion operable to control said third ink ejecting portion such that a total volume of at least one droplet of said third ink ejected by said third ink ejecting portion to form each dot of said third ink is equal to a third value, when said image is formed on the recording medium with said predetermined resolution, with said predetermined gray-scale value at a picture element corresponding to said each dot of said third color.

13. (Original) The color ink-jet printer according to claim 12, wherein said third value is equal to one of said first and second values.

14. (Currently Amended) A color ink-jet printer comprising:

a first ink ejecting portion operable to eject droplets of a black ink;

a second ink ejecting portion operable to eject droplets of an ink of a color other than black;

a pulse-waveform-data memory for storing pulse-waveform data indicative of a plurality of different waveforms corresponding to respective different total volume values of at least one droplet of each of the black ink and the ink of said color other than black;

a first control portion operable to select, for said at least one droplet for forming each dot of said black ink on a recording medium, one of said plurality of different waveforms stored in said pulse-waveform-data memory, and control said first ink ejecting portion to eject said at least one droplet, on the basis of the selected one of said plurality of different waveforms; and

a second control portion operable to select, for said at least one droplet for forming each dot of said color other than black on said recording medium, another of said plurality of different waveforms stored in said pulse-waveform-data memory, and control said second ink ejecting portion to eject said at least one droplet, on the basis of the selected another of said plurality of different waveforms,

wherein a total volume of said at least one droplet of said black ink ejected by said first ejecting portion is larger than a total volume of said at least one droplet of the ink of said color other than black ejected by said second ink ejecting portion

and said first and second control portions controlling said first and second ink ejecting portions such that a relationship between said total volume of the at least one droplet of said black ink and said total volume of the at least one droplet of the ink of said color other than black changes when a presently selected print mode of the color ink-jet printer is changed from one mode to another,

wherein said first and second control portions are operable to select said one and another of said plurality of different waveforms, on the basis of said presently selected print mode that is selected from a plurality of different print modes which correspond to respective

different values of resolution of an image to be printed on said recording medium,
irrespective of gray-scale values at respective picture elements of said image.

15. (Original) The color ink-jet printer according to claim 14, further comprising a first pulse generator operable to generate a drive pulse signal to be applied to said first ink ejecting portion, on the basis of said one of said plurality of different waveforms selected by said first control portion, and a second pulse generator operable to generate a drive pulse signal to be applied to said second ink ejecting portion, on the basis of said another of said plurality of different waveforms selected by said second control portion.

16. (Cancelled)

17. (Original) The color ink-jet printer according to claim 14, wherein said first and second control portions are operable to select said one and another of said plurality of different waveforms, on the basis of respective gray-scale values at respective picture elements of an image at which respective ink dots are to be formed by said first and second ink ejecting portions according to print data.

18. (Previously Presented) The color ink-jet printer according to claim 1, further comprising a print-mode memory portion operable to store said presently selected print mode indicative of one of first and second print qualities, said first print quality being lower than said second print quality, and wherein said second control portion controls said second ink ejecting portion such that said another total volume value is smaller than said selected one total volume value if the presently selected print mode indicates said first print quality.

19. (Previously Presented) The color ink-jet printer according to claim 18, wherein said second control portion controls said second ink ejecting portion such that said another total volume value is not smaller than said selected one total volume value if the presently selected print mode indicates said second print quality.

20. (Currently Amended) The color ink-jet printer according to claim 1, wherein said first and second control portions control said first and second ink ejecting portions, to change said selected one total volume value of the at least one droplet of said black ink and said another total volume value of the at least ~~lest~~ one droplet of the ink of said color other than black ~~than~~ when said presently selected print mode is changed from said one mode to another, such that the changed another total volume value is smaller than the changed selected one total volume value.

21. (Previously Presented) The color ink-jet printer according to claim 11, further comprising a print-mode memory portion operable to store said presently selected print mode indicative of one of first and second print qualities, said first print quality being lower than said second print quality, and wherein said second control portion controls said ink ejecting portion such that said second value is smaller than said first value if the presently selected print mode indicates said first print quality.

22. (Previously Presented) The color ink-jet printer according to claim 21, wherein said second control portion controls said second ink ejecting portion such that said second value is not smaller than said second value if the presently selected print mode indicates said second print quality.

23. (Previously Presented) The color ink-jet printer according to claim 11, wherein said first and second control portions control said first and second ink ejecting portions, to change said first value of the total volume of the at least one droplet of said first ink and said second value of the total volume of the at least one droplet of said second ink when said presently selected print mode is changed from said one mode to another, such that the changed second value is smaller than the changed first value.

24. (Previously Presented) The color ink-jet printer according to claim 14, further comprising a print-mode memory portion operable to store said presently selected print mode indicative of one of first and second print qualities, said first print quality being lower than said second print quality, and wherein said second control portion controls said second ink ejecting portion such that said total volume value of the at least one droplet of said color

other than black is smaller than said total value of the at least one droplet of said black ink if the presently selected print mode indicates said first print quality.

25. (Previously Presented) The color ink-jet printer according to claim 24, wherein said second control portion controls said second ink ejecting portion such that said total volume of the at least one droplet of said color other than black is not smaller than said total volume of the at least one droplet of said black ink if the presently selected print mode indicates said second print quality.

26. (Previously Presented) The color ink-jet printer according to claim 14, wherein said first and second control portions control said first and second ink ejecting portions, to change said total volume of the at least one droplet of said black ink and said total volume of the at least one droplet of the ink of said color other than black when said presently selected print mode is changed from said one mode to another, such that the changed total volume of the at least one droplet of the ink of said color other than black is smaller than the changed total volume of the at least one droplet of said black ink

27. (Previously Presented) A color ink-jet printer comprising:

a first ink ejecting portion operable to eject droplets of a black ink;

a second ink ejecting portion operable to eject droplets of an ink of a color other than black;

a first control portion operable to control said first ink ejecting portion such that a total volume of at least one droplet of said black ink ejected by said first ink ejecting portion to form each dot of the black ink on a recording medium is equal to a selected one of a plurality of different total volume values; and

a second control portion operable to control said second ink ejecting portion such that a total volume of at least one droplet of the ink of said color other than black, which is ejected by said second ink ejecting portion to form each ink dot of said color other than black on the recording medium, is equal to another of said plurality of different total volume values which is smaller than said selected one total volume value,

and wherein said first and second control portions control said first and second ink ejecting portions to form an image on the recording medium, such that a relationship between said selected one total volume value of the at least one droplet of said black ink and said another total volume value of the at least one droplet of the ink of said color other than black in each first local area of said image in which the black ink dots are adjacent to the ink dots of said color other than black is different from that in each second local area of the image in which the black ink dots are not adjacent to the ink dots of said color other than black.

28. (Previously Presented) The color ink-jet printer according to claim 27, wherein said first and second control portions control said first and second ink ejecting portions, to change said selected one total volume value of the at least one droplet of said black ink and said another total volume value of the at least one droplet of the ink of said color other than black in at least said each second local area of the image, when gray-scale values at picture elements corresponding to the ink dots in said each second local area of the image are changed.

29. (Previously Presented) A color ink-jet printer comprising:

a first ink ejecting portion operable to eject droplets of a first ink of a first color;

a second ink ejecting portion operable to eject droplets of a second ink of a second color other than said first color;

a first control portion operable to control said first ink ejecting portion such that a total volume of at least one droplet of said first ink ejected by said first ink ejecting portion to form each dot of said first ink on a recording medium is equal to a first value, when an image is formed on the recording medium with a predetermined resolution, with a predetermined gray-scale value at a picture element corresponding to said each dot of said first ink; and

a second control portion operable to control said second ink ejecting portion such that a total volume of at least one droplet of said second ink ejected by said second ink ejecting portion to form each dot of said second ink on the recording medium, is equal to a second value smaller than said first value, when said image is formed on the recording medium with said predetermined resolution, with said predetermined gray-scale value at a picture element corresponding to said each dot of said second ink,

and wherein said first and second control portions control said first and second ink ejecting portions such that a relationship between said first value if the total volume of the at

least one droplet of said first ink and said second value of the total volume of the at least one droplet of said second ink in each first local area of said image in which the dots of said first ink are adjacent to the dots of said second ink is different from that in each second local area of the image in which the dots of the first ink are not adjacent to the dots of the second ink.

30. (Previously Presented) The color ink-jet printer according to claim 29, wherein said first and second control portions control said first and second ink ejecting portions, to change said first value of the total volume of the at least one droplet of said first ink and said second value of the total volume of the at least one droplet of said second ink in at least said each second local area of the image, when the gray-scale values at the picture elements corresponding to the ink dots in each said local area of the image are changed.

31. (Previously Presented) A color ink-jet printer comprising:

a first ink ejecting portion operable to eject droplets of a black ink;

a second ink ejecting portion operable to eject droplets of an ink of a color other than black;

a pulse-waveform-data memory for storing pulse-waveform data indicative of a plurality of different waveforms corresponding to respective different total volume values of at least one droplet of each of the black ink and the ink of said color other than black;

a first control portion operable to select, for said at least one droplet for forming each dot of said black ink on a recording medium, one of said plurality of different waveforms stored in said pulse-waveform-data memory, and control said first ink ejecting portion to eject said at least one droplet, on the basis of the selected one of said plurality of different waveforms; and

a second control portion operable to select, for said at least one droplet for forming each dot of said color other than black on said recording medium, another of said plurality of different waveforms stored in said pulse-waveform-data memory, and control said second ink ejecting portion to eject said at least one droplet, on the basis of the selected another of said plurality of different waveforms,

wherein a total volume of said at least one droplet of said black ink ejected by said first ejecting portion is larger than a total volume of said at least one droplet of the ink of said color other than black ejected by said second ink ejecting portion,

said first and second control portions controlling said first and second ink ejecting portions to form an image on the recording medium, such that a relationship between said total volume of the at least one droplet of said black ink and said total volume of the at least one droplet of the ink of said color other than black in each first local area of said image in which the black ink dots are adjacent to the ink dots of said color other than black is different from that in each second local area of the image in which the black ink dots are not adjacent to the ink dots of said color other than black.

32. (Previously Presented) The color ink-jet printer according to claim 31, wherein said first and second control portions control said first and second ink ejecting portions, to change said total volume of the at least one droplet of said black ink and said total volume of the at least one droplet of the ink of said color other than black in at least said each second local area of the image, when gray-scale values at picture elements corresponding to the ink dots in said each second local area of the image are changed.

33. (New) The color ink-jet printer according to claim 1, wherein said first and second control portions control said first and second ink ejecting portions such that said another total volume value of the at least one droplet of the ink of said color other than black is kept smaller than said selected one total volume value of the at least one droplet of said black ink, after said presently selected print mode is changed from one mode to another.

34. (New) The color ink-jet printer according to claim 11, wherein said first and second control portions control said first and second ink ejecting portions such that said second value for the total volume of the at least one droplet of said second ink is kept smaller than said first value of the total volume of the at least one droplet of said first ink, after said presently selected print mode is changed from one mode to another.

35. (New) The color ink-jet printer according to claim 14, wherein said first and second control portions control said first and second ink ejecting portions such that said total volume of the at least one droplet of the ink of said color other than black is kept smaller than said total volume of the at least one droplet of said black ink, after said presently selected print mode is changed from one mode to another.